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ACC Poster Contributions
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Sunday, March 14, 2010, 9:30 a.m.-10:30 a.m.

Session Title: Radiation Exposure with CT Coronary Angiography
Abstract Category: CT Coronary Angiography
Presentation Number: 1034-203

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Background: A novel coronary scan mode was introduced with a 128-slice dual source CT scanner in 2008: A high pitch (3.4) spiral scan mode (Flash) acquires the heart in ¼ of a second. We applied an algorithm for scan protocol selection, and evaluated diagnostic quality and patient dose of the first 200 consecutive coronary scans.

Methods: 200 consecutive patients (53 ± 14 years, body mass index 25.3±3.9, 129 male) referred for coronary imaging were scanned on the Somatom Definition Flash, Siemens Healthcare, Germany.

All eligible patients were administered beta blockers to reduce the heart rate to below 65 bpm, and scanned with the Flash mode. Patients who did not respond to or could not tolerate beta blockers, but had a regular heart rate, were scanned with an axial/sequential scan mode. Patients with a high and irregular heart rate were scanned with a retrospectively gated spiral mode.

Tube voltage was set to 80kV, 100kV, and 120kV for patients weighing less than 60kg (13%), between 60kg & 100kg, and more than 100kg (6%), respectively.

Patient dose was recorded and all scans were evaluated for image quality.

Results: 192 patients were scanned using the Flash scan mode, receiving an average dose of 0.89±0.42mSv. Of these, patients scanned at 80kV, 100kV, and 120kV received doses of 0.32±0.05mSv, 0.85±0.08mSv, and 1.78±0.39mSv respectively.

5 patients scanned with an axial scan mode received 1.71±0.09 mSv.

3 patients scanned with a spiral scan mode received 3.82±0.46 mSv.

All scans were deemed to be of diagnostic quality, with confident reading by 2 experienced readers.

Conclusion: Our algorithm for scan protocol selection yielded diagnostic coronary scans in all patients. 96% of our patients were eligible for imaging with the Flash scan mode, which yielded consistent diagnostic quality imaging of coronaries at a dose below 1 millisievert.